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**Lochtefeld et al.**

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(54) **LATTICE-MISMATCHED SEMICONDUCTOR STRUCTURES WITH REDUCED DISLOCATION DEFECT DENSITIES AND RELATED METHODS FOR DEVICE FABRICATION**

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See application file for complete search history.

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(57) **ABSTRACT**

Fabrication of monolithic lattice-mismatched semiconductor heterostructures with limited area regions having upper portions substantially exhausted of threading dislocations, as well as fabrication of semiconductor devices based on such lattice-mismatched heterostructures.

**21 Claims, 24 Drawing Sheets**

